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MOVING THE MASSES

FIRST TBM BREAKTHROUGH FOR THE MRT SSP LINE ● 7

MRT CORP RECOGNISES CONTRACTORS' BIM LEVEL 2 PARTICIPATION ● 14

EDITOR



**Dato' Najmuddin
Abdullah**



Leong Shen-Li



Ean Yaacob



Wallace Soh Chun Hwei



Khairul Azlee



Nur Amalina



Ezreen Siti Juliana



Suzy Kubong



Fakhrurrazi



Puteri Nur
Atika Dayana



Mia
Haziqah



Johan



Wan Aznoor



Hazwan



Irina Yasmin

PUBLISHER & DESIGN

Mass Rapid Transit Corporation Sdn Bhd
Tingkat 5, Menara I & P 1, No. 46, Jalan Dungun
Bukit Damansara, 50490 Kuala Lumpur

MRT INFORMATION CENTRE

MRT INFORMATION CENTRE BANDAR MALAYSIA NORTH
Bandar Malaysia North MRT Construction Site
Lot 256, Lebuhraya KL-Seremban
50461 Kuala Lumpur

Mon - Fri: 9:00am - 6:00pm

Weekend & Public Holidays: **CLOSED**

MRT CORPORATE HEADQUARTERS

MASS RAPID TRANSIT CORPORATION SDN BHD (902884-V)
Level 5, Menara I & P1, No. 46, Jalan Dungun,
Bukit Damansara, 50490 Kuala Lumpur

We welcome your enquiries and suggestions
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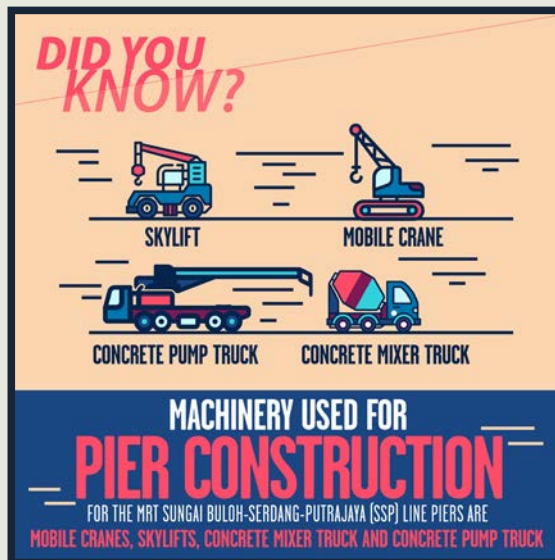
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DID YOU KNOW?

The MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line uses the same machinery for the construction of both pier columns and pier heads.

MRT Sungai Buloh-Kajang (SBK) Line Hotline:

Helpline: +603-7885 2585

Email: suggest@myrapidkl.com.my

Website: www.myrapid.com.my

Facebook: myrapid

Twitter: @askrapidkl | @myrapidkl

Instagram: @myrapidkl



FOREWORD

THE first half of 2019 has seen several important milestones achieved for the MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line.

Two of the most significant milestones were related to our electric train work package. The first was the arrival of the first batch of train cars from the Hyundai-Rotem plant in Changwon, South Korea in January. The cars, for two sets of trains, were then brought to Malaysia's first MRT train assembly plant in Rasa to be assembled.

In May, there was excitement once again at Port Klang when the two fully assembled trains arrived from South Korea, the first time we got to see our complete train set. As per our agreement with our electric trains work package contractor HAP Consortium, the first two sets of 49 trains were to be built up completely in South Korea and shipped here while the remaining 47 sets would be assembled locally.

In view of these two events, we have decided to focus on our trains for the cover story for this edition of Interchange.

The first half of this year also saw the first section of tunnelling completed. Launched in May last year, the first tunnel boring machine had successfully tunnelled from the Bandar Malaysia North station site and broken through at the Chan Sow Lin station site in January this year.

Besides being the first section of the 13.5km underground alignment of the SSP Line to be completed, the breakthrough was also a commendable achievement as it ground the TBM tunnelled through was extremely challenging due to its Karstic limestone characteristics. *Alhamdulillah* the tunnel excavation proceeded without any major incident.

More exciting events and milestones are in store for the second half of the year. We will continue to share each of these achievements with you through Interchange as well as other information platforms such as our website and social media channels for you to join in the excitement and celebrate each success with us.

Thank you.

ABDUL YAZID KASSIM

CHIEF EXECUTIVE OFFICER
MASS RAPID TRANSIT CORPORATION SDN BHD



MOVING THE MASSES

THE 52.2km long MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line, the second line of the Klang Valley MRT Project, will be served by 49 train sets.

The trains are being manufactured by a consortium made up of Hyundai Rotem (South Korea), APEX Communications Sdn Bhd (Malaysia) and POSCO Engineering Co. Ltd (South Korea), which goes by the name HAP Consortium.

The train design is centred around the theme 'bold' with the colour red, while the colour yellow represents practicality. Yellow is also the colour assigned to the

SSP Line by the Land Public Transport Agency.

Designed by MBD Technologies Design (France), the train's unique exterior design takes into consideration the view when it enters the station and runs along the platform. Its interior is designed to handle the 1,200 passenger load at maximum capacity.

The gangway area is wide and open for easy circulation, giving the sensation of uninterrupted passenger area all through the train.



BEFORE IT BECOMES WHOLE

The train body, as well as other important parts such as the bogies are manufactured in Changwon, South Korea, before being shipped to Malaysia for assembly. The first train car bodies arrived at Port Klang on 24 January 2019.

In Changwon, aluminium sheets are extruded into the shape of the different parts of the train and welded together to form the train body. Once ready, they are painted with the final colours; white, red and yellow for the coupler cover.

The train bogies, which train users hardly notice, are a major component of a train. They comprise of its wheels and engine, and is the propulsion component of the train. Each train car has two bogies.

Apart from South Korea, other

components come from all over the world, such as train brakes from Germany, coupler covers from Sweden, and other interior parts from China.

Through the Industrial Collaboration Program (ICP), the Malaysian Government is encouraging local companies to participate and subsequently benefit from the knowledge and technology transfer by requiring HAP Consortium to source some parts of the train locally. These include the gangway which is manufactured by HMI Hubner Malaysia Inovasi in Banting and the coupler by Dellner Malaysia in Shah Alam.

The various parts of the trains are then transported to the train assembly plant in Rasa, Hulu Selangor to be assembled.

• COMING TOGETHER AT RASA •

The train assembly plant at Rasa is operated by SMH Rail and was one of the benefits of the ICP Program for the first MRT line where it also assembled the MRT Sungai Buloh-Kajang (SBK) Line trains.

• THERE ARE FOUR STAGES IN THE ASSEMBLY OF THE TRAINS AT THE PLANT. •

PRE-ASSEMBLY

All preparation works are carried out such as cabling and piping works, markings as well as unwrapping of all parts sent from different parts of the world.

OUTFITTING

This is the main assembly activity, where all the different parts of the train are put together. Besides large components such as windows and doors, there are also many components which may not be visible to the untrained eyes but are essential to operate the train, such as the electrical system, brakes and propulsion.

Concurrently, outfitting work to the interior is also carried out, where the seats, handrails, passenger information display boards and other parts are fitted onto the train car body.

Once completed, the train cars are then moved to the next work station where the bogies are installed. When four car bodies (consisting of two motor or 'M-cars' and two trailer or 'T-cars') have been assembled, they are coupled together to form a four-car train set.

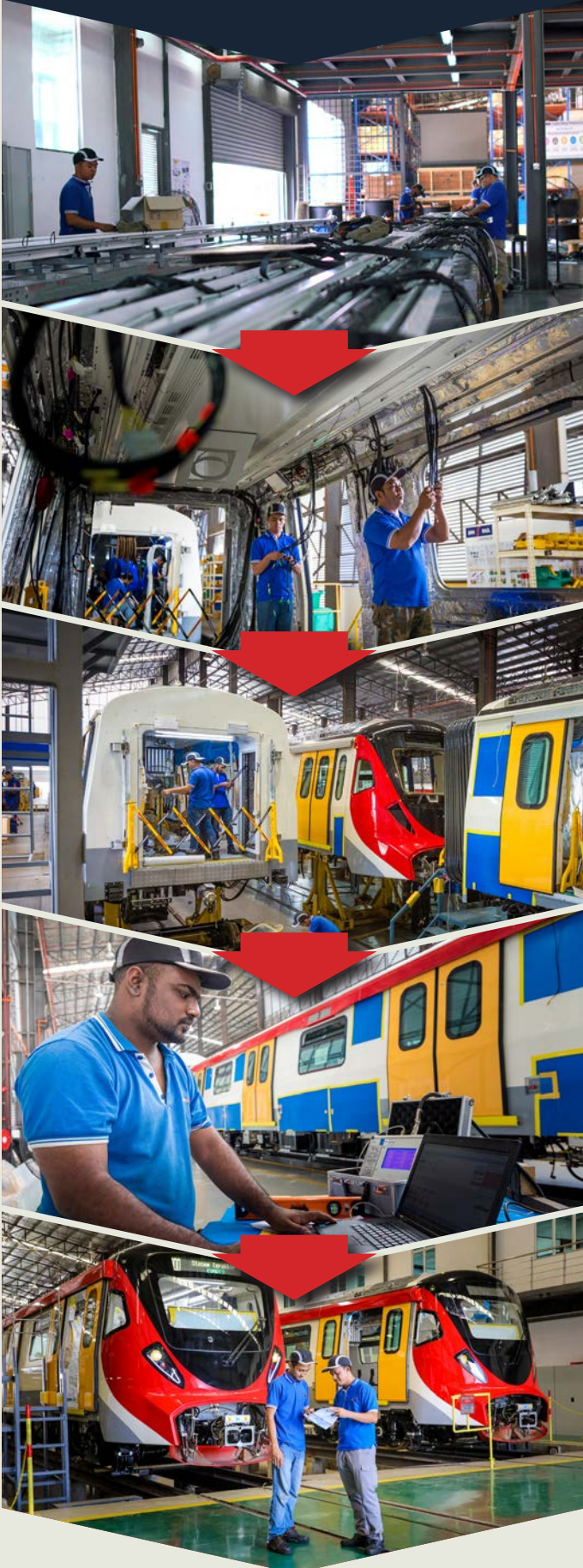
STATIC TESTING

This is the first round of tests that the trains undergo to ensure that all electrical systems and other electronic parts of the trains are working. Among the tests are train weighing, vehicle control circuit testing and ventilation and air-conditioning testing. This is the stage where the trains come to life as they are energised.

DYNAMIC TESTING

Once all the basic facilities of the train have been verified, the functional behaviour of the trains as well as the overall performance of the train are then tested. They include the trains' movability such as braking system testing and obstacle detection testing. The trains are also tested to reach a certain speed, grip properly and also interface with other systems such as signalling.

Partial acceptance tests and on-site corrections are done to the train at the assembly plant before the trains are transported to the MRT Depot in Sungai Buloh.



FINAL TESTS IN SUNGAI BULOH

A series of tests take place here beginning with the Systems Acceptance Test. The test is to demonstrate that the trains are capable of functioning in accordance to the specified requirements in the contract. The trains will undergo tests such as the ride quality and stability test and energy consumption test.

It is the final test to be undertaken to ensure overall compatibility of the train performance with all interfacing systems for operational readiness, prior to the commencement of trial operations.

Next is the Fault Free Run test, an important stage before the train is ready for operations. This is where the Land Public Transport Agency will verify that the train is ready for operations. All aspects of the SSP Line operations will be demonstrated to show that it is ready to be used by the public. These include train frequency, end-to-end journey time and train service availability. The trains' driverless function and ability to operate and brake safely will also be demonstrated as the trains are made to run for a required mileage.

Prior to opening, the operator will also conduct trial operations for a set period. Once this is done, the SSP Line is ready for its first passengers. 🚆





Q&A WITH ENCIK MUHAMMAD RAIMI MOHD RADZI

FRESH off the higher education system, this Monash University graduate began his career six years ago with Mass Rapid Transit Corporation Sdn Bhd as a systems engineer, serving the MRT Sungai Buloh-Kajang (SBK) Line project and the MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line project. His experience has been invaluable as he is involved from the design stage, to the manufacturing, and later the testing and commissioning stage to ensure that the rolling stock will operate at optimum levels. Here, Raimi shares on his experience working for the MRT Project.

WHO ARE YOU AND HOW LONG HAVE YOU BEEN WITH MRT CORP?

I am a Project Engineer for the SSP-SY-203 Work Package which involves the engineering, procurement, construction, testing and commissioning of electric trains and depot equipment for the MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line. This is currently my sixth year with Mass Rapid Transit Corporation Sdn Bhd and my second MRT project.

WHAT IS YOUR ROLE IN MRT CORP?

As a Project Engineer, I work closely with the major stakeholders of the project, namely the Project Deliver Partner, electric trains work package contractor and the independent consulting engineer. In general, our team project manages the contract and all involved activities in the manufacturing and delivery of the trains.

Generally, the first two years of the project was when all stakeholders were involved in the engineering design of the trains. As the project owner, we had to ensure that all design proposals were in compliance to the technical requirements. We also had to liaise with relevant external stakeholders early in the design phase including the future SSP Line operator, government authorities and other relevant parties.

After the designs were finalised, we moved into the construction phase which is where we are now. We are on-site at the manufacturing plants in Changwon, South Korea and Rasa, Hulu Selangor, to monitor the quality of the trains and the progress of the works.

From next year onwards, we will be busy with the testing and commissioning of the trains for the targeted Phase 1 opening which is in mid-2021.

I am involved in all of the process mentioned, paying close attention to the work activities to ensure that the project progresses smoothly.

WHERE DO YOU SEE YOURSELF IN THE NEXT TEN YEARS?

As our country progresses, the need for railways will only increase. We can't keep building roads because that will encourage people to buy more cars, and then we will need to build more roads to cater to more cars. The cycle will never end.

I see myself being in the railway industry in the next decade either building new ones or operating existing ones. There is still so much to learn and I wish develop my career in this industry to become an expert. The railway industry is exciting when we consider the advances in technology such as digitalisation, Internet of Things and artificial intelligence. I am looking forward to seeing these innovations effecting change and improving the living quality of everyone in the country.

WHAT IS THE MOST CHALLENGING MOMENT IN THE PROJECT THAT YOU HAVE EXPERIENCED?

I feel that at every stage in this project, a new challenge presents itself. This is the most interesting part about being in a project. The tasks are never routine. The challenge is to adapt to the fast pace of the project.

An example would be that just a year ago, we were constantly in meeting rooms finalising technical designs of the trains. Fast forward to the present day and we find ourselves coordinating the delivery of the trains to the Sungai Buloh Depot and making sure that they are manufactured as per the required standards. Before we know it, we will be running these trains on the mainline and preparing to let the public use them.

WHAT IS YOUR EDUCATION BACKGROUND?

I studied engineering at Monash University and joined the company immediately upon graduation. I was enrolled into the MRT Sungai Buloh-Kajang (SBK) Line Offset Programme which was a collaboration between MRT Corp and Siemens AG, the manufacturer of the SBK Line trains. I was attached full-time with Siemens for slightly more than two years with the objective of gaining practical exposure and specific knowledge on the field of rolling stock engineering.

Being in a structured training program greatly benefited me as a fresh graduate since railway engineering and rolling stock are rather niche areas and not something widely covered during my studies.

HOW HAS THE EXPERIENCE BEEN WORKING?

The experience from being involved in the SBK Line has certainly been beneficial to my current role. There are high stakes involved in the execution of the project and the experience throughout the offset programme has helped prepare me for the tasks involved in the SSP Line. Through lessons learnt exercises and experience, we are now able to foresee problems earlier and thus, immediate preventive measures can be taken before the problems occur.

FIRST TBM BREAKTHROUGH FOR THE MRT SSP LINE

CONSTRUCTION of the MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line achieved a major milestone in January this year when the first tunnel boring machine (TBM) broke through into the Chan Sow Lin MRT Station box.

The breakthrough which took place on 29 January 2019 also marked the completion of the first stretch of tunnel - for north-bound trains between Bandar Malaysia North Station and Chan Sow Lin Station - of the underground section of the SSP Line.

The state-of-the-art Variable Density TBM was launched at Bandar Malaysia North Station on 1 March 2018 and took approximately 11 months to excavate a distance of 1.9 km underground between the two stations.

Mass Rapid Transit Corporation Sdn Bhd (MRT Corp) organised a media event to mark the historic event. Besides the media, members of the MRT Corp's SSP Line Project Team and MMC Gamuda KVMRT (T) Sdn Bhd, the underground works contractor for the SSP Line, were also present to celebrate the moment.

The achievement was made more significant as the TBM, codenamed S-776-VD, was one of the TBMs used on the earlier MRT Sungai Buloh-Kajang (SBK) Line.

It was one of 10 that had been refurbished at a local refurbishment plant in Pusing, Perak, to be reused for the SSP Line. The plant is the first and only TBM refurbishment facility in Southeast Asia capable of carrying out such works.

Following the breakthrough, the TBM would be pulled across the Chan Sow Lin Station box and then relaunched to excavate its second tunnel drive northwards between Chan Sow Lin Station and the Tun Razak Exchange Station. Once it reaches Tun Razak Exchange Station, the TBM would be disassembled and taken out of the ground in parts.

A total of 12 TBMs including S-776-VD would be used for the construction of the 13.5 km underground section of the SSP Line. Of the 12, 10 are Variable Density TBMs which were specially designed to handle tunnel excavation works through the challenging limestone geological formation beneath Kuala Lumpur.



PRESS CONFERENCE: (from left) MMC-Gamuda KVMRT (UG) Sdn Bhd Tunnelling Director Mr Ng Hau Wei, MRT Corp Strategic Communications and Stakeholder Relations Director Dato' Najmuddin Abdullah, MMC-Gamuda Construction Director Dato' Ubull Din Om and MMC-Gamuda Head of Geotechnical Dr Ooi Lean Hock addressing the media.



CELEBRATION: Members from the MRT Corp Project Team and MMC Gamuda's construction team posing for a photo in front of the TBM.



BREAKTHROUGH: Sequence of photos showing the tunnel boring machine breaking out from the ground after excavating a stretch of tunnel.



TRANSPORT MINISTER BREAKS FAST WITH MRT WORKERS

TRANSPORT Minister YB Tuan Anthony Loke visited the Cochrane MRT Centralised Labour Quarters (CLQ) and joined workers involved in the construction of the MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line on 17 May 2019 in the breaking of fast. The visit was Loke's first to the MRT CLQ since being appointed as Minister.

During the visit, Loke was shown around the CLQ by Mass Rapid Transit Corporation Sdn Bhd (MRT Corp) Chief Executive Officer Encik Abdul Yazid Kassim. Also present were members of MRT Corp Board of Directors and Leadership Team as well as representatives from MMC Gamuda KVMRT (T) Sdn Bhd, the Underground Works Contractor for the SSP line.

During the walkabout, Loke had the opportunity to see the facilities available to the workers, such as the kitchen area, laundry room, 24-hour clinic and games multi-purpose court.

After the walkabout, Yazid gave a welcome note followed by a speech by Loke. The minister commended MRT Corp for providing the basic needs of the workers through the CLQ. He also said the

workers were the backbone of the country's infrastructure projects and the Government was appreciative of their hard work.

Just before the breaking of fast, Loke together with Yazid went around the dining area to greet and shake hands with all the workers at the event.

The Cochrane MRT CLQ currently houses workers for the construction of the underground section of the SSP Line, which involved tunnelling works and the construction of underground stations.

The CLQ currently houses more than 1,100 workers of eight different nationalities, including Malaysians. Previously, the Cochrane MRT CLQ housed workers who were involved in the construction of the underground section of the MRT Sungai Buloh-Kajang (SBK) Line.

MRT Corp has provided 11 CLQs for the workers involved in the construction of the SSP Line. The CLQs are located in Sungai Buloh, Cochrane and Serdang. The CLQs provide workers with comfortable, clean and safe housing, which help to ensure their wellbeing and also prevent any social problems from arising. 🇲🇾



■ **WALKABOUT:** MRT Corp Standard and Compliance Director Encik Yusof Kasiron (middle) together with Yazid (left) showing the facilities of the Cochrane MRT CLQ to Loke (right).



■ **HEALTH CHECK:** Loke trying out the facilities at the CLQ clinic.



BUMIPUTERA CONTRACTORS AWARDED MRT PROJECT JOBS

SUBCONTRACTS worth over RM230 million have been awarded to Bumiputera contractors which belong to the Construction Industry Development Board (CIDB) Grades G1 to G6 by Mass Rapid Transit Corporation Sdn Bhd (MRT Corp) as at 30 June 2019.

The award of these subcontracts, numbering a total of 163 packages, is part of the Klang Valley MRT Project Bumiputera Participation Programme whereby a certain number of subcontracts are allocated by the main work package contractors of the MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line for Bumiputera contractors.

The subcontracts allocated for contractors belonging to Grades G1 to G4 are awarded by way of balloting while those for Grade G5 and G6 are awarded by the main work package contractors themselves.

According to the grading by CIDB, Grade G1 contractors are eligible for work packages up to the value of RM200,000, while those in Grade G2 are eligible for work packages between RM200,001 and RM500,000. Grade G3 contractors are eligible for work packages between RM500,001 and RM1,000,000 while those in Grade G4 are eligible for work

packages between RM1,000,001 and RM3,000,000.

Those in Grade G5 are eligible for work packages between RM3,000,001 and RM5,000,000 and those in Grade G6 can vie for work packages between RM5,000,001 and RM10,000,000.

Of the 163 subcontracts to date, 54 packages worth RM8.4 million were awarded to G1 contractors, 33 packages worth RM11.4 million to G2 contractors, 28 packages worth RM21.7 million to G3 contractors and 30 packages worth RM58.8 million to G4 contractors.

A total of 21 ballot sessions were organised by MRT Corp's Administration Department and Bumiputera Relations Department and MMC Gamuda KVMRT (PDP SSP) Sdn Bhd as project delivery partner with the participation of CIDB, Perbadanan Usahawan Nasional Berhad (PUNB), Contractor and Entrepreneur Development Division of the Works Ministry and various Bumiputera contractor associations to award these subcontracts.

Meanwhile, eight packages worth RM29.8 million were awarded to G5 contractors, and 10 packages worth RM100.3 million were awarded to G6 contractors. 🚗

AGREEMENT FOR MUTUAL BENEFIT SIGNED

MASS Rapid Transit Corporation Sdn Bhd (MRT Corp) and Cyberjaya's Tech Hub Enabler, Cyberview Sdn Bhd signed a mutual agreement to enable the construction of an MRT station in the upcoming Cyberjaya City Centre development.

The agreement, signed at MRT Corp's Corporate Headquarters on 3 April 2019, was the first of its kind for a development to be implemented under the Selangor State's Public Infrastructure Oriented Development (PIOD) policy that was introduced in 2017.

The agreement allowed for an MRT station and related structures of the MRT Sungai Buloh-Serdang-

Putrajaya (SSP) Line to be built on land owned by Cyberview without the need for land acquisition.

This coexistence between a land owner and public infrastructure would mutually benefit both parties by significantly reducing the overall cost of the MRT project, while Cyberjaya City Centre would become a transit-oriented development which would enjoy seamless integration with a modern, efficient, reliable and environmentally friendly public transport system.

The agreement was signed by MRT Corp Chief Executive Officer Encik Abdul Yazid Kassim and Cyberview

Managing Director Encik Najib Ibrahim.

"Connectivity is a significant element for successful cities today. We are confident that the MRT station located within Cyberjaya City Centre will address many of the future needs of the communities here and encourage social and economic opportunities and growth for Cyberjaya."

"The Coexistence Development Model that we are embarking on with MRT Corp eliminates the need for costly acquisition and allows Cyberview to focus on building the city centre as a transit-oriented development (TOD), thereby

maximizing its value and eventual offerings," said Najib.

Abdul Yazid said such coexistence arrangements between township developments and the MRT would allow for greater numbers of people to have access to efficient public transport.

"Providing efficient and reliable mobility to as many people as possible is a fundamental objective for developing public transport. As such, MRT Corp will always be supportive of such mutual agreements for coexistence for TODs," he said. 🚗



■ **SEALED:** Najib (second from left) and Yazid (second from right) shake hands after signing the mutual agreement. Witnessing the signing are Cyberview Sdn Bhd Project Management Division Head Encik Ahmad Faizul Ramli (left) and MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line Project Director Dato' Amiruddin Ma'aris (right).

KNOWLEDGE SHARING SEMINAR WITH PLAN MALAYSIA

A SERIES of sessions were held by Mass Rapid Transit Corporation Sdn Bhd (MRT Corp) with the Department of Town and Country Planning (PLANMalaysia) where information and knowledge about the Klang Valley MRT Project were shared.

On 29 January 2019, MRT Corp was invited to PLANMalaysia's office at Bukit Damansara, Kuala Lumpur where information about tunnelling and the construction of the underground stations for the MRT Project was shared.

The half-day session was an effort on the part of PLANMalaysia to understand the construction process which were vital in their preparation of the Stratum Development Guidelines and Case Study.

A team of 18 PLANMalaysia staff and consultants attended the seminar. The team was led by PLANMalaysia Research and Development Division Deputy Director II Puan Rozita Hamit.

MRT Corp shared presentations covering topics such as Alignment Selection, Underground Site Selection: Geo Aspects, Design Considerations for Station and Tunnel including Architectural Aspects and Electrical and Mechanical Aspects, Underground Construction of Tunnels and Stations and the Railway Protection Zone.

Also shared were real case studies and challenges faced by MRT Corp in the construction of both the MRT Sungai Buloh-Kajang (SBK) and MRT Sungai Buloh-Serdang-Putrajaya (SSP) Lines and how MRT Corp overcame these construction challenges.

Meanwhile, Rozita said stratum development guidelines which were currently being prepared by PLANMalaysia were intended as a reference for local authorities, developers and stakeholders for underground development. Guidelines were needed especially with the introduction of new laws on the acquisition of underground land.

She added that the guidelines would be important for local authorities when evaluating submissions for planning permission.

As a follow up to the first sharing session, a half-day visit to the MRT Ampang Park Station site was organised for PLANMalaysia on 5 March 2019. A delegation of 19 staff and consultants, led by PLANMalaysia Research and Development Division Director Dato' Dr Zainah Ibrahim, participated in the visit.

At the site, a presentation on the MRT Project was delivered by MRT Corp SSP Line Underground Station Project Manager II Encik Megat Suwardi Said. He shared with the delegation details of the station such as its layout and sections, geological profile, progress as well as key risks and challenges.

The visitors then took a tour of the site, going down to the lower concourse level of the station which had been excavated.

The Ampang Park MRT Station will be the deepest underground station at 45m beneath the land surface. It is being built using the top-down method where the station is being built from the roof slab downwards at the same time as the station box is excavated. 🚇



■ **EXPLANATION:** MRT Corp SSP Line Underground Station Project Manager II Megat Suwardi Said (second from right) explaining to PLANMalaysia Research and Development Division Director Dato' Dr Zainah Ibrahim about the method of underground station construction.



KEEPING THE WAKIL RAKYAT UPDATED

SINCE construction of the MRT Sungai Buloh-Kajang (SBK) Line commenced in 2010, Mass Rapid Transit Corporation Sdn Bhd (MRT Corp) has been holding regular briefing sessions for Members of Parliament (MP), State Assemblymen and Local Councillors of areas affected by the project.

This practice has also been followed for the construction of the MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line where sessions were recently held for the wakil rakyat and representatives from the relevant federal and state constituencies as well as local authorities.

On 24 January 2019, a session attended by State Assemblyman Bukit Lanjan YB Puan Elizabeth Wong, Selayang Councillor Mr Fok Wai Mun and representatives from the offices of MP Sungai Buloh YB Tuan R. Sivarasa, MP Damansara YB Tuan Tony Pua, MP Kepong YB Tuan Lim Lip Eng and State Assemblyman Taman Templer YB Tuan Mohd Sany Hamzan was held.

A portion of the northern elevated section of the SSP Line from Sungai Buloh to Jinjang is being built in these areas.

The session was held at the MRT Information Centre, Jalan Sultan Azlan Shah and was opened by MRT Corp Strategic Communications and Stakeholder Relations Director Dato' Najmuddin Abdullah.

MMC-Gamuda KVMRT (PDP SSP) Sdn Bhd Public Relations and Stakeholder Management Senior Manager Encik Mohar Zainal Abidin and Approvals Management Head Encik Zamri Shaari briefed on the project construction progress and on the recent cost

rationalisation exercise of the project respectively.

Also present was MMC-Gamuda Public Relations and Stakeholder Management Head Encik Zamri Hasan.

The participants of the briefing took the opportunity to share their feedback and concerns on a number of construction-related issues especially those associated with traffic management, to which MRT Corp pledged its full cooperation with various authorities to minimise the impact of construction works.

A similar session was held on 22 February 2019 at the Bandar Malaysia North MRT Information Centre for representatives of constituencies in the Federal Territory of Kuala Lumpur and the Kuala Lumpur City Hall.

Representatives who attended the session were from the offices of MP Batu YB Tuan P. Prabakaran, MP Titiwangsa YB Datuk Seri Rina Mohd Harun, MP Bukit Bintang YB Tuan Fong Kui Lun, MP Seputeh YB Puan Teresa Kok and MP Bandar Tun Razak YB Dato' Kamarudin Jaffar.

A third session was subsequently held on 25 April 2019 at the same location with representatives from the offices of MP Puchong YB Tuan Gobind Singh Deo, MP Sepang YB Tuan Mohamed Hanipa Maidin and ADUN Seri Serdang YB Dr Siti Mariah Mahmud, as well as representatives from Subang Jaya Municipal Council and Sepang Municipal Council.

The areas covered under the third session were affected by the southern elevated section of the SSP Line. 🚇



FOCUS ON SAFETY AND HEALTH AND THE FUTURE OF WORK



■ **OPENING SPEECH:** Yazid delivering his opening speech at the KVMRT OSH Conference 2019.



■ **LAUNCHED:** Omar signing a plaque when opening the KVMRT OSH Conference 2019.

THE annual Klang Valley Mass Rapid Transit (KVMRT) Occupational Safety and Health (OSH) Conference was organised by Mass Rapid Transit Corporation Sdn Bhd (MRT Corp) at the KVMRT Training Centre, Sungai Buloh on 2 and 3 May 2019.

The theme for the 2019 edition was 'Safety and Health and the Future of Work' and the participants included employees of MRT Corp, Department of Occupational Safety and Health (DOSH), Department of Environment (DOE), Work Package Contractors for the MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line and MMC-Gamuda KVMRT (PDP) Sdn Bhd which is the project delivery partner of the SSP Line.

The conference was opened by DOSH Director General Tuan Ir Haji Omar Mat Piah. In his speech, Omar commended MRT Corp on its commitment in organising these activities as they were a reflection of the organisation's commitment in ensuring working environment is safe and healthy.

In his speech during the opening ceremony, MRT Corp Chief Executive Officer Encik Abdul Yazid Kassim lauded MRT Corp's Standard and Compliance Division for their effort in championing safety in the Project and the infrastructure and construction sector as a whole.

The first presentation was by Ir Dr Mohd Fairuz Ab Rahman from DOSH on the topic, 'National Safety and Health Policy 2019, Guaranteeing the Future of Workers.' He explained that the policy aimed to increase the level of OSH through sustainable risk management at the workplace in protecting employers and workers in Malaysia.

After the morning break, Prof Dr Shamsul Bahri Hj Mohd Tamrin from Universiti Putra Malaysia presented his paper, 'Ergonomic Improvement in Construction Site - Case Study.' He rationalised that it was gradually becoming clear to society that systems and products should be designed to take into account many human and environmental factors if they were to be used safely and effectively. This should also include the construction industry.

A sharing session led by MRT Corp CLQ, Health, Environment, Safety and Security Manager Encik Muhammad Nor Hadi Kasah was then held where anecdotes were shared by those who had suffered injuries while working on the KVMRT Project. The session highlighted the importance of safety and health measures for the wellbeing of both employer and employees.

Puan Nurul Nadia Md Arif from the Social Security Organisation (SOCSO) concluded the first day of the conference with a presentation on the topic 'Return to Work Scheme, Assurance for Workers' Future.' She explained that the scheme was an incentive to motivate and encourage workers to find ways to enable them to return to work in a fast and safe manner. She added that SOCSO provided physical and vocational rehabilitation facilities, which also included mileage claims and travel expenses.

The second day of the conference saw six participants presenting papers on safety and health. The presentations were selected from a competition which was held earlier and open to all personnel involved in the SSP Line Project.

The first place went to Encik Prashnan A/L Narayanan from MMC-Gamuda KVMRT (PDP) Sdn Bhd with a paper titled 'Mental Health and Simple Ways to Reduce Work Stress' followed by Encik Rosli Ahmad also from MMC-Gamuda KVMRT (PDP) Sdn Bhd in second place with his presentation on 'Safety and Health Planning, How to Improve Existing HIRADC Process in Our Project.'

The third place went to Puan Norazreen Samsuri from MRT Corp with a paper titled 'Ergonomics Awareness, Equipment Assisting Manual Handling.'

The remaining three participants, who received consolation prizes, were Mr Anto Jos Menachery from MRT Corp, Encik Khairul Nizam Aris and Captain (R) Ibrahim Hamid, both from Sapura EVD Consortium. 🚗



BIM LEVEL 2 EXCELLENCE AWARD 2018



MRT CORP RECOGNISES CONTRACTORS' BIM LEVEL 2 PARTICIPATION

CONTRACTORS and consultants involved in the construction of MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line which have performed exceptionally well with the Building Information Modelling (BIM) Level 2 workflow were recently recognised by Mass Rapid Transit Corporation Sdn Bhd (MRT Corp).

On 27 March 2019, six companies received awards which were presented during the Digital & Automated Construction and MRT Corp BIM Day 2019 which was held at Sunway Putra Hotel Kuala Lumpur.

The awards were aimed at encouraging the various project teams and also the industry in general to adopt a more collaborative design and construction process. By leveraging on BIM technology and Virtual Design and Construction processes, project goals would be able to be met with enhanced productivity.

Evaluation for the awards were carried out by MRT Corp's Digital Engineering and Design Coordination team under the Planning and Design Department which put the winners through a thorough assessment process.

The awards were divided into three categories, namely the Civil Contractors Category, Systems Contractors Category and the Consultants Category.

MRT Corp Director of Planning and Design Er Poh Seng Tiok presented the awards to the winners.

The BIM workflow has been successfully established and implemented for the execution for the SSP Line, where the use of the BIM workflow was mandated throughout the design, construction and operational stages of the project.

During the conference, Poh also delivered a paper entitled, 'Digital Transformation on the Construction of MRT Malaysia and Beyond Building Information Modelling (BIM) Level 2.'

The implementation of BIM technology for the SSP Line has attracted wide recognition, where MRT Corp became the first infrastructure developer in Asia to achieve accreditation for its adoption of BIM Level 2. The accreditation was by Lloyd's Register. 🚇

MRT CORP BIM LEVEL 2 EXCELLENCE AWARDS 2018 WINNERS

Civil Contractor Category Winner:

- MMC-Gamuda KVMRT (T) Sdn Bhd

Systems Contractor Category Winners:

- Najcom – EV Dynamic Joint Venture
- Colas Rail Consortium

Consultant Category Winners:

- AECOM Perunding Sdn Bhd
- SAA Architects Pte Ltd
- Arup Jururunding Sdn Bhd

AUN-DPPNET ACCESSIBILITY AND UNIVERSAL DESIGN TRAINEES VISIT MRT FACILITIES

TWENTY participants from the Accessibility and Universal Design Training course of the ASEAN University Network – Disability and Public Policy (AUN-DPPnet) visited the MRT Sungai Buloh-Kajang (SBK) Line to view the facilities for the disabled.

The visit took place on 17 April 2019 and comprised of persons with disabilities from the ASEAN

region. They were accompanied by 10 volunteers from Universiti Malaya.

The visit was aimed at learning of what facilities that the Klang Valley MRT Project had put in place for the disabled community.

The visit began at Kwasa Sentral MRT Station where Mass Rapid Transit Corporation Sdn Bhd (MRT

Corp) Strategic Communications and Stakeholder Relations Junior Executive Encik Maharezan Mahadzir welcomed the delegates.

MRT Corp Planning and Design Senior Project Manager Encik Mohd Fadzil Abd Hadi then briefed the group on the facilities provided such as the special wider lane at the automatic fare collection gates for individuals on wheelchairs,

dedicated places for wheelchairs in trains and tactile tiles for those who were visually impaired.

The delegation then took a train ride to Pasar Seni MRT Station where Fadzil highlighted the unique themes of the seven SBK Line underground stations. He also explained on the emergency escape procedure at an underground station. 🚆



MRT FAN APPRECIATED

SEVEN-year-old Ahmad Wazif Mohd Amir is a true fan of the MRT. Wazif, who has leukaemia, is very fascinated with trains and draws pictures of trains in his free time.

His interest in the MRT became prevalent when he and his family began using the MRT Sungai Buloh-Kajang (SBK) Line between Kajang Station and Taman Midah Station for his chemotherapy treatment in Hospital Universiti Kebangsaan Malaysia for the past two years.

On 23 February 2019, Mass Rapid Transit Corporation Sdn Bhd (MRT Corp) paid Wazif a visit at his home in Semenyih. MRT Corp Strategic Communications and Stakeholder Relations Director Dato' Najmuddin Abdullah led the visit to convey MRT Corp's appreciation to Wazif for his interest in the MRT.

Wazif is the youngest child of three children of Encik Mohd Amir Mohd Azir and Puan Sazrina Ramli.

During the visit, Wazif was very happy and excited to receive gifts from MRT Corp. He was especially happy to get MRT souvenirs in the form of a colouring book with MRT trains and stations. Najmuddin also presented a framed photo of Wazif superimposed onto a background of the MRT tunnel as a gift.

Najmuddin said he hoped the gifts will inspire him to study hard and become an engineer in the future. He also hoped that the visit can help instil some fighting spirit in Wazif to combat his illness.

The visit was one of MRT Corp initiatives to celebrate and share happiness with MRT fans especially with those who were less fortunate. 🚆



■ **APPRECIATION:** Najmuddin (second from left) presenting the gift to Wazif (middle). With them are Mohd Amir (left), Sazrina (second from right) and Wazif's brothers.

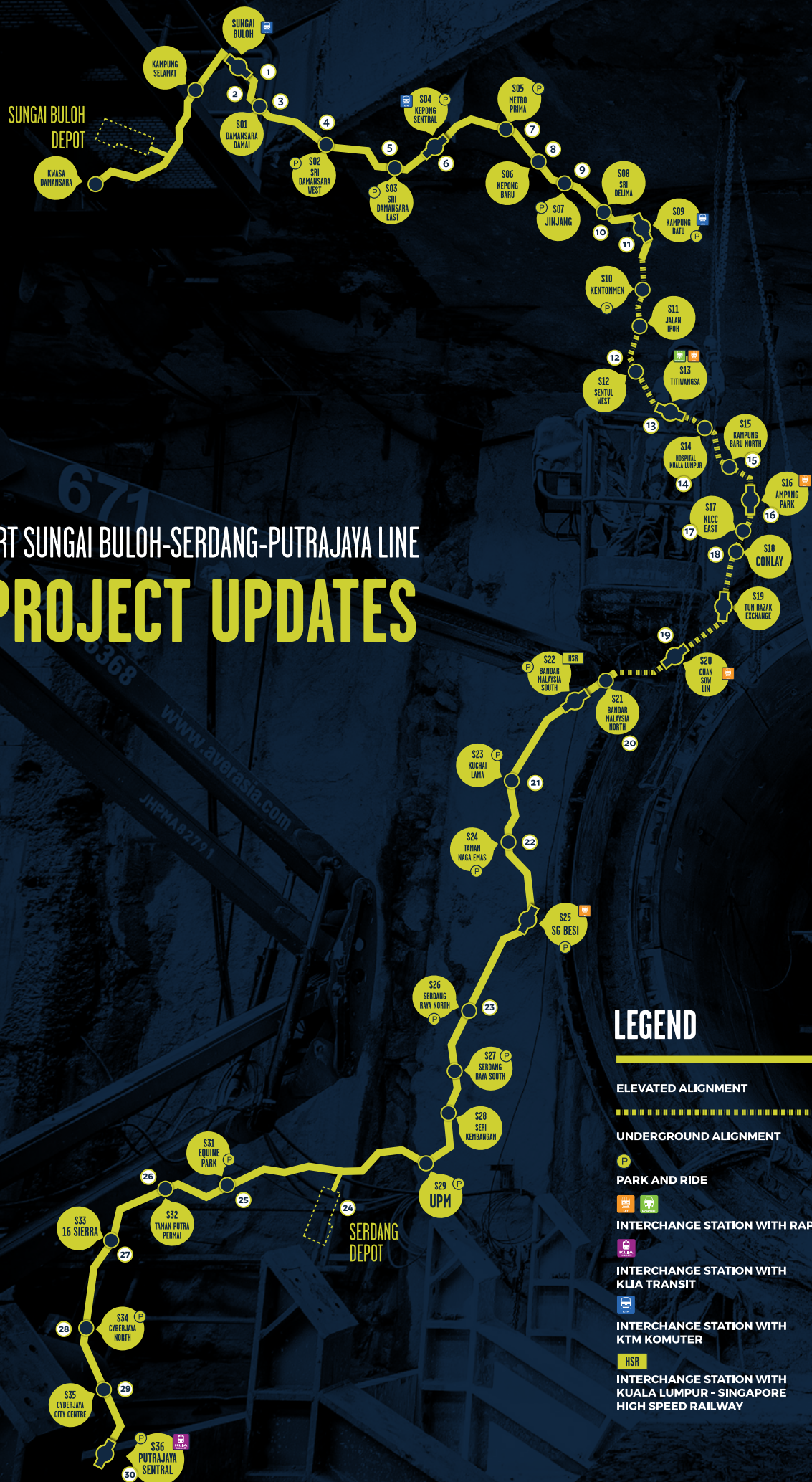


■ **MASTERPIECES:** Some of Wazif's artwork showing MRT trains and stations.



■ **EXCITED:** Wazif completing the MRT-themed train jigsaw puzzle with his mother, Sazrina.

MRT SUNGAI BULOH-SERDANG-PUTRAJAYA LINE PROJECT UPDATES



LEGEND

- ELEVATED ALIGNMENT**
- UNDERGROUND ALIGNMENT**
- PARK AND RIDE**
- INTERCHANGE STATION WITH RAPIDKL**
- INTERCHANGE STATION WITH KTM TRANSIT**
- INTERCHANGE STATION WITH KTM KOMUTER**
- HSR**
- INTERCHANGE STATION WITH KUALA LUMPUR - SINGAPORE HIGH SPEED RAILWAY**

1



Completion of segmental box girder erection using trestle at the MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line alignment near IGB International School.

2



Segmental box girder erection for long span crossing no. 1 in progress at Sungai Gasi near the Sungai Buloh Toll.

3



Aerial view of the ongoing trackwork at the Damansara Damai MRT Station site.

4



Preparation for trackwork can be seen at the Sri Damansara West MRT Station site.

5



Aerial view of final stressing works for long span crossing at Sri Damansara East MRT Station site.

6



Installation of launching gantry in progress at Kepong Sentral MRT Station site. T-beam installation has been completed for the station's concourse level.

7



Ongoing foundation works for tower crane at the Metro Prima MRT Station site.

8



View of the ongoing architectural works such as blockwall, plastering and painting at platform level of the Kepong Baru MRT Station.

9



View of the installation works for steel structure lower frame in progress at the Jinjang MRT Station concourse level.

10



Concourse level beam and slab false-work erection in progress at the Sri Delima MRT station site.

11



View of ground roof casting for Entrance 1 at the Kampung Batu MRT Station site.

12



Progressive excavation has reached the platform level of the Sentul West MRT Station.

13



View of the tunnel boring machine launching taking place at the Titiwangsa MRT Station site.

14



Ongoing excavation works of the Hospital Kuala Lumpur MRT Station site.

15



Roof slab construction works in progress at the Kampung Baru North MRT Station site.

16



View of the excavation works taking place at the Ampang Park MRT Station site.

17



Ongoing excavation works at the KLCC East MRT Station site.

18



View of the construction site of Conlay MRT Station.

19



View of the excavation works taking place at the Chan Sow Lin MRT Station site.

20



Aerial view of the Bandar Malaysia North MRT Station site.

21



Aerial view of the assembly of launching gantry and T-beam launching works in progress at the Kuchai Lama MRT Station site.

22



Aerial view of works in progress for station concourse and segmental box girder launching at the Taman Naga Emas MRT Station site.

23



View of ongoing bore piling and pier construction works at the Serdang Raya North MRT Station site.

24



Trenches and slab preparation for concreting at Serdang Depot infrastructure workshop.

25



View of the segmental box girder erection at the Equine Park MRT Station site.

26



Completion of segmental box girder erection at the Taman Putra Permai MRT Station site.

27



View of 16 Sierra MRT Station Entrance 1 structure work in progress.

28



View of completed span launching at the Cyberjaya North MRT Station site.

29



Segmental box girder launching works completed at the Cyberjaya City Centre MRT Station site.

30



Aerial view of the completed works for launching segmental box girder at the Putrajaya Sentral MRT Station site.



■ **COURTESY VISIT:** Najmuddin (fourth from right) and Zamri (third from left) with Hee (fourth from left) pose for a group photograph at the end of the visit.

COURTESY VISIT TO KAJANG ADUN

MASS Rapid Transit Corporation Sdn Bhd (MRT Corp) paid a courtesy visit to the office of YB Tuan Hee Loy Sian at Pusat Khidmat Rakyat DUN Kajang on 29 January 2019.

The visit was led by MRT Corp Strategic Communications and Stakeholder Relations

Director Dato' Najmuddin Abdullah. Also present was Project Delivery Partner MMC-Gamuda KVMRT (PDP) Sdn Bhd Public Relations and Stakeholder Management Head Encik Zamri Hasan.

The visit was arranged as part of MRT Corp's stakeholder engagement efforts to engage newly elected MPs and Assemblymen along the MRT Sungai Buloh-Kajang (SBK) Line and MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line.

During the visit, Najmuddin briefed Hee on the two lines, including the latest updates of the SSP Line.

A portion of the now operating SBK Line runs within Hee's state constituency of Kajang and Hee took the opportunity to share the concerns and feedback from Kajang residents regarding the MRT Project. 🗨️



MRT CORP VISITS GIACC

A DELEGATION from Mass Rapid Transit Corporation Sdn Bhd (MRT Corp) met with the Governance, Integrity and Anti-Corruption Centre (GIACC) as part of efforts to further strengthen the company's good governance and anti-corruption initiatives.

Led by its Chief Executive Officer Encik Abdul Yazid Kassim, the MRT Corp delegation consisted of members from MRT Corp Board of Directors and Leadership Team. The delegation met with GIACC Director General Tan Sri Abu Kassim Mohamed and several other officers of the centre.

The objective of the meeting was to learn more about the National Anti-Corruption Plan

(NACP) 2019-2023 which was launched by Prime Minister Tun Dr Mahathir Mohamad in January 2019.

During the meeting, Abu Kassim commended MRT Corp for being the first government-owned company to engage with the GIACC on the NACP initiatives, and its commitment to act in accordance with the NACP.

NACP consists of 115 anti-corruption initiatives to combat corruption, including underlining the limits of authority in an effort to separate the Government administration from political influence.

MRT Corp had developed the Integrity Plan 2019

which was acknowledged by GIACC as having covered many of the NACP's initiatives. GIACC also recommended others to be included, such as Corruption Risk Management and Scenario Planning as well as compliance with Corporate Liability and the Foreign Corrupt Practices Act.

Since its inception, MRT Corp has been complying with integrity initiatives and obtained ISO37001:2016 Anti Bribery Management Systems certification. MRT Corp has also made it a priority to ensure that its employees adhered to anti-corruption policies and procedures. 🚗

HAPPENINGS



INSIGHTS: Mass Rapid Transit Corporation Sdn Bhd Strategic Communications and Stakeholder Relations Director Dato' Najmuddin Abdullah talking about the Klang Valley MRT Project with the Perdana Fellow Programme participants at MRT Corp Corporate Headquarters on 4 January 2019.



LEARNING: A delegation from the Ministry of Planning, Bangladesh visited MRT Corp on 20 February 2019 to learn about public project monitoring and evaluation systems.



VISIT: A delegation from the Land Transport Authority of Singapore visited MRT Corp on 20 and 21 February 2019 to learn more about MRT Corp's Building Information Modelling (BIM) initiatives. Their programme included a visit to the MyBIM Centre in Kuala Lumpur.



SHARING SESSION: An information sharing session was held with a delegation from the Urban Geology 2019 workshop on 28 February 2019 at the Bandar Malaysia MRT Information Centre where they visited the Tunnel Boring Machine Control Centre.



LISTENING: The participants of the Bursa Malaysia Invest Malaysia 2019 programme learning more about tunnelling works during a visit to the Bandar Malaysia North MRT Information Centre on 21 March 2019.



FRUITFUL VISIT: The delegation from the Public Works Department visited the Bandar Malaysia North MRT Station site and Information Centre on 3 April 2019.

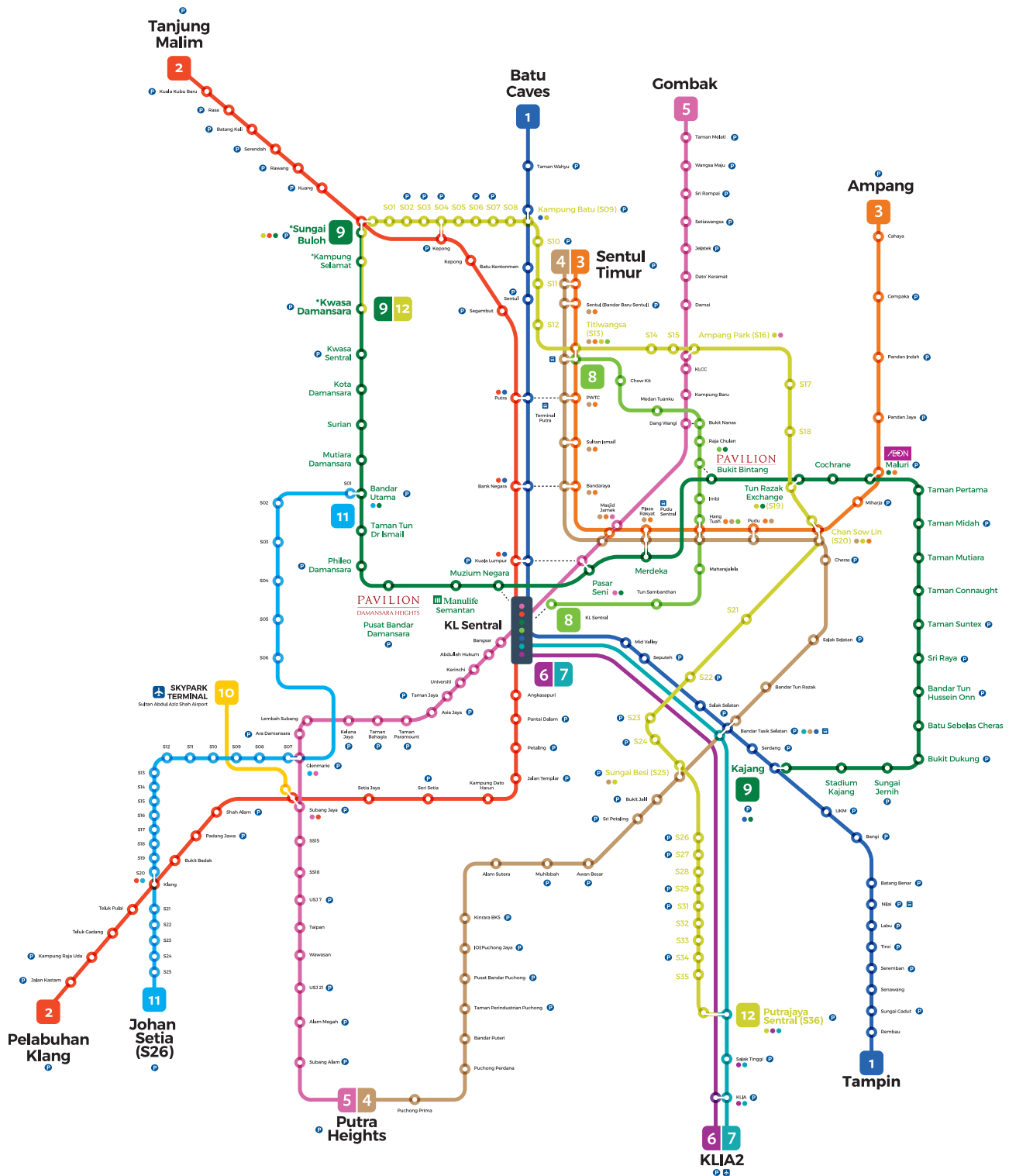


PROJECT INFORMATION: MRT Corp Sdn Bhd Strategic Communications and Stakeholder Relations Assistant General Manager Encik Ean Yaacob introducing the Klang Valley MRT Project at the 'Future Growth of KL Property Hotspot - Sri Petaling' programme organised by Chin Hin Property Development on 14 April 2019.



COMPREHENSIVE: A delegation from Malaysia Rail Link Sdn Bhd, the developer of the East Coast Rail Link (ECRL) visited MRT Corp on 26 June 2019 to learn about the implementation of Geographical Information System in the construction of the Sungai Buloh-Serdang-Putrajaya Line.

KLANG VALLEY RAIL TRANSIT MAP



Legend

1 KTM Seremban Line	5 LRT Kelana Jaya Line	9 MRT Sungai Buloh-Kajang Line	Connecting Station	Airport Terminal
2 KTM Port Klang Line	6 ERL KLIA Ekspres Line	10 KTM Skypark Line	Interchange Station	Park and Ride
3 LRT Ampang Line	7 ERL KLIA Transit Line	11 LRT Bandar Utama-Klang Line	Rail Terminal	
4 LRT Sri Petaling Line	8 KL Monorail Line	12 MRT Sungai Buloh-Serdang-Putrajaya Line	Intercity Bus Station	

- * When operations commence in 2021, the MRT Sungai Buloh-Serdang-Putrajaya (SSP) Line will begin from Kwasa Damansara Station. This brings the total number of stations for the SSP Line to 38 including the Kwasa Damansara Station, Kampung Selamat Station and Sungai Buloh Station which are built under the MRT Sungai Buloh-Kajang (SBK) Line. Therefore, the SBK Line will also begin from Kwasa Damansara Station. This will reduce the number of stations for the SBK Line from 31 to 29 stations.